DOCUMENT RESUME

ED 280 643 RC 016 117

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TITLE Cooperative Professional Services for Severely Handicapped Children in Rural Areas: Implementation of Programs and Analysis of Child Progress Data.
PUB DATE Oct 86
NOTE 11p.; Paper presented at the Annual Conference of the National Rural and Small Schools Consortium (Bellingham, WA, October 7-10, 1986).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Community Services; Cooperative Programs; *Delivery Systems; Educational Assessment; Family Programs; Infants; Models; *Outcomes of Education; Preschool Education; Pretests Posttests; Program Descriptions; Program Effectiveness; *Program Implementation; Regional Programs; Rural Areas; *Rural Education; *Severe Disabilities; *Special Education; Toddlers
IDENTIFIERS *Early Intervention Programs; Tennessee

ABSTRACT

The delivery model of the Birth-through-Three program incorporates interlocking community-based centers with a regional agency (Little Tennessee Valley Educational Cooperative) under the administrative guidance of an advisory council. The program goal is to provide highly qualified professional services to the targeted children/families within their home communities in a cost-effective manner. A community-based center in Blount County, Tennessee, serves 15 children and one in Loudon County serves 7 children. The centers provide direct professional services and a Parent Information Center that informs, trains, and uses the skills of parents. Children eligible for the program meet at least one of the following criteria: (1) medical diagnosis associated with mental retardation; (2) diagnosis of moderate or greater mental retardation as determined by psychological assessment; and (3) significant delays in at least two of the five targeted developmental areas. Data on the progress of each child enrolled is maintained through a pretest/posttest procedure. Data analysis shows consistently significant gains in perceptuo-cognitive, language, and gross motor skills. The program's regional cooperative administrative structure, coupled with the employment of highly qualified professional staff, appears to be a productive, cost-effective model for providing educational services to young handicapped children in rural areas. (JHZ)

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Cooperative Professional Services for Severely Handicapped Children in Rural Areas: Implementation of Programs and Analysis of Child Progress Data

By

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RC016117

Paper presented at the Annual Conference of the National Rural and Small Schools Consortium (Bellingham, WA, October 7-10, 1986).

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COOPERATIVE PROFESSIONAL SERVICES FOR SEVERELY HANDICAPPED CHILDREN IN RURAL AREAS: IMPLEMENTATION OF PROGRAMS AND ANALYSIS OF CHILD PROGRESS DATA

The Little Tennessee Valley Educational Cooperative (LTVEC) is a chartered non-profit organization that provides services, primarily through the local school systems, to children and families in three rural East Tennessee counties located in the Appalachian region. In 1981, LTVEC was awarded a grant under U.S. Office of Education's Handicapped Children's Early Education Programs to develop and demonstrate a comprehensive educational program for birth through three-year-old severely handicapped children and their families in a rural setting. Designated the "Rural Preschool Services Model Project", the program received three years of federal funding which have been followed by two years of state and local funding for continuing service and research (major funding sources included TN. Dept. of Mental Health & Mental Retardation, United Way, and Monroe County Schools). Now entering its sixth year, the program, now known simply as "Birth-through-Three", will provide comprehensive educational services to at least 22 seriously handicapped children in two rural communities.

The delivery model of the Birth-through-Three program incorporates interlocking community-based centers with a regional agency (LTVEC), under the administrative guidance of an Advisory Council. The impetus of the program is to provide highly qualified professional services to the targeted children/families within their home communities in a cost-effective manner.

The delivery model was originally implemented in two sites (Blount and Monroe Counties, TN), with a third site opened in the second year of the project (Loudon Co., TN). The year's delay in opening the third site was to enable the lessons learned from the first two to be applied to it. Thus, opening the third site became a refinement process. Over the succeeding years, further refinements have been made, increasing the cost-effectiveness of the

program. Presently, two community based centers are in operation: one in Blount Co., serving 15 children; and one in Loudon Co., serving 7 children.

Each community-based center has two basic components: direct services from highly qualified professionals to the children; and a Parent Information Center (PIC) that informs, trains, and utilizes the skills of the parents.

Direct services to the children at each site are provided by a site coordinator/school psychologist, a lead teacher, two teaching assistants, a physical therapist, an occupational therapist, a speech/language pathologist, and a teacher of the visually impaired. The coordinator, lead teacher, and teaching assistants are assigned to a specified center, while the other professional staff members work at both centers. The coordinators work together on administrative issues which affect both centers. The Birth-through-three program itself has no full-time employees, though some of the staff members are full-time with LTVEC.

A focus on utilizing highly trained multi-professionals is based on the assumption that programming for severely handicapped children requires the skill and expertise of a variety of well-trained specialists. Only the highly trained educationally-oriented specialist can be expected to possess the complex skills required for effective intervention. The sharing of skills across professional boundaries and the maintenance of a professional/emotional support nextwork that exists among the staff members are maximized by the cooperative structure. Professionals and paraprofessionals consult with each other to insure continuity in each child's program across all disciplines. Each of the teaching assistants and the lead teacher are trained to work with one member of the professional staff, becoming an "expert" in a particular discipline. That expertise is shared with all staff members so that the most effective methods for meeting the child's needs can be discovered.

Eligibility for the program requires meeting one of the following criteria: 1) a medical diagnosis associated with mental retardation; 2) a diagnosis of moderate or greater mental retardation as determined by psychological assessment; 3) significant delays in at least two of the five targeted developmental areas (perceptuo-cognitive, fine motor, gross motor, speech/language, and personal-social/adaptive). There is no direct financial charge to the families. However, families are expected to contribute to the program through transportation, donations of small supplies and snack foods, and volunteering in the center. The staff believes that the families who do make some investment in the program in these relatively small ways are the ones who are able to draw the most from the services offered to them.

The children attend the center based program in groups of 5 to 7 for two half-days each week. Each child has an individualized educational program (IEP) consisting of goals and objectives based upon his developmental levels in each of the five targeted areas (listed above). Developmental levels are determined based on comprehensive evaluations completed by the appropriate professionals. Those IEPs are carried out by the lead teacher and teaching

assistants under the supervision of the professional staff. Each professional staff member designs the IEP and trains the paraprofessional in the target area associated with her area of specialty (i.e. school psychologist works with perceptuo-cognitive; physical therapist with gross motor, etc.). Each child sees each professional on the average of once every-other-week (variations depend on the child's individual needs). The center day is organized so that each child recieves one-on-one intervention in each target area as well as small group stimulation and incidental learning, especially in the areas of socialization and communication.

Home-based intervention is offered in addition to center-based when it is appropriate to the family's needs. The home sessions focus on training the child/parents/families in specific skills, or on parent support/emotional counseling. Most home sessions are carried out by the coordinator/school psychologists.

The Parent Information Centers (PIC) in each county are based in the Birth-through-Three centers. Staffing for the centers is a cooperative effort of the regular Birth-through-three staff and parent volunteers. The three basic components of the PIC are providing parents with information about their rights, providing information to parents about where and how to get other services as needed, and the coordination of specialized training for parents such as providing respite care and extended family interactions.

Since the inception of the Birth-through-three program in 1981, data on the progress of the children enrolled has been maintained through a pre-test/post-test procedure. Research has been made a priority because of a belief in the importance of efficacy studies in early intervention. Philosophically, it has been accepted that the earlier appropriate intervention programs are initiated, the greater the handicapped child's chances of developing to fullest potential. Practitioners presume that changes can be made to occur in the child, the caregiver, the family, and the environment. However, whether specific abilities can be modified and to what extent is an empirical question rather than a philosophical one.

Adequate evaluation of intervention programs are difficult to achieve, not only because of the differences among the handicapped children, but also because the specific handicaps add even more variability. Therefore, it is difficult to establish scientifically adequate control groups that are comparable to groups of handicapped infants in any treatment program. In addition, there are ethical issues involved in balancing the need for further information in general, and in providing treatment. Although research methodology and ethical issues make efficacy research with handicapped infants difficult, such research must be conducted if professionals are to have confidence that various psychoeducational and/or therapeutic interventions are, in fact, therapuetic.

Therefore, the purpose of our on-going study is three-fold:

1) To document the effectiveness of intervention with severely handicapped

children in the present project. It is recognized that any intervention program has many components which contribute to the program's level of effectiveness. In this paper, only data collection and analysis of child progress is presented. No attempt is being made to generalize to the broader population.

2) To present practical strategies for data collection and analysis which attempt to address the need for more rigorously controlled studies. It is recognized that there is difficulty in balancing the need to provide appropriate intervention services and to obtain adequate documentation of effectiveness. Possibly by sharing strategies, the balance between the two goals will be more compatible.

3) To stimulate further research in the area of early intervention with severely handicapped children.

Pre-test/post-test data was taken on all children. The Memphis Comprehensive Developmental Scales and the Program for Early Attention to Children with Handicaps (PEACH) were used. Testing was done when the child entered the program or at the beginning of the intervention period, and repeated when the child left the program or at the end of the intervention period.

Testing was done in each developmental area by the associated professional. That is, fine motor was done by the occupational therapist, gross motor by the physical therapist, language by the speech/language pathologist, cognitive and perceptual by the school psychologist, and personal-social by the lead teacher. (Personal-Social was completed by parent report.) Tester reliability was checked by bringing in qualified professionals not familiar with the children to retest, controlling for "teaching the test". All reliability correlations were above .90. (Full information on the reliability study is available on request.)

This study is a quasi-experimental design. Rather than using a control group, each child's "expected gains" were compared to his actual gains. Therefore, each child served as his own control. Expected gains were determined by dividing the pretest developmental age by the pretest chronological age, then multiplying by the number of months of intervention. For example, if a 4 month old child has a developmental age of 2 months, and is in the program 8 months, his expected gain for the 8 month period is 4 months. It is assumed that successful intervention will result in actual gains significantly higher than expected gains.

The data presented on the following pages covers only the first two years of the project (further data will be made available at the presentation). For the attached data, 23 children between the ages of 5 weeks and 42 months were studied. Intervention included a center-based program for 3 1/2 hours, two days per week, plus individualized home support programs. Nine of the 23 children could be classified as severely mentally retarded (Down's Syndrome, hydrocephaly, unknown origin). The remaining children were multihandicapped (combinations of cerebral palsy, mental retardation, severe neurological

impairment, blind/visually impaired, severe behavior disorder, autism, seizure activity, congenital anomolies, dwarfism, Pierre Robin Syndrome, and tracheostomy).

In addition to the test score data, demographic data has been collected on each child. Multiple regression techniques have been used to analyze this data. A sample of the findings ("severity of handicap") is attached.

As can be seen on the data summary pages, gains in Perceptuo-Cognitive, Language, and Gross Motor skills were consistently significant. This trend has continued through the additional three years of the project. Fine Motor and Personal-Social have continued not to be significant, although approximately half of the children tested do exceed their expected gains in those areas. The fine motor scales employed appear to measure primarily distal motor skills. Subjectively, it seems that fine motor development was primarily proximal for these subjects during the intervention period. This seems to be supported by significant gains found in Gross Motor. Also, as previously noted, Personal-Social skills were measured by parent report. It may be that in some cases the scores were more reflective of changes in the parent's perceptions than of actual skill changes for the child.

The results reported tend to support the following trends:
1) Since second year Memphis scores were significant, one might infer that first year gains were not necessarily related to novelty of the program;
2) It appears that we are beginning to provide communication skills to the profoundly handicapped group. Perhaps with increased communications skills, gains will also become apparent in cognitive development.

Some problems inherent to this and similar studies should be noted. First, it is extremely difficult to find a reliable instrument which is sensitive enough to pick up the changes in this very young, severly handicapped group. (The Memphis is measured in 3 month increments; the PEACH is in 1 month increments below 12 months developmental level, and 3 months thereafter.) Second, the N for this data is very small and the standard deviation is large. Given the nature of the population, it is suspected that a larger N will still have a large standard deviation.

Continued refinement of the Birth-through-Three intervention procedure, and research on the success of that intervention, is on-going. The regional cooperative administrative structure, coupled with the employment of highly qualified professional staff, appears to be a productive, cost-effective model for providing educational services to young handicapped children in rural areas.

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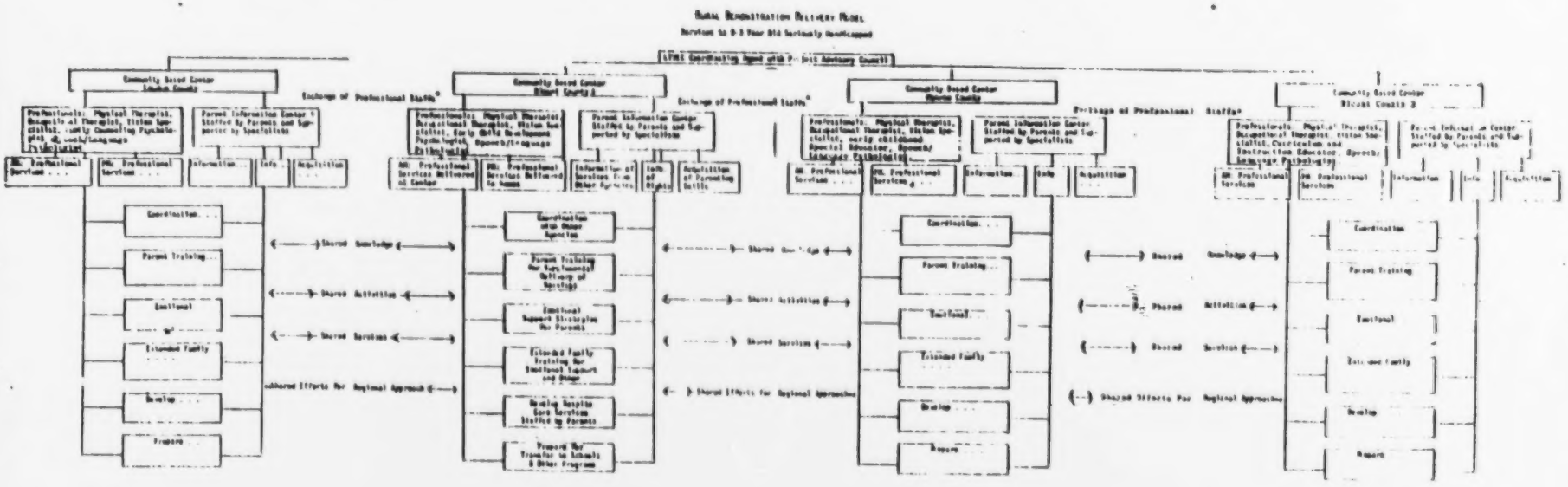

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LITTLE TENNESSEE VALLEY EDUCATIONAL COOPERATIVE

BIRTH-THRU-THREE PROGRAM

SUMMARY OF TENTATIVE RESULTS

A. The Memphis Developmental Scales were administered to 15 children on a pre-test - post-test basis during the first year of the project. The intervention period was 4 months. A correlated t-test (one-tailed) was used to compare expected and actual gains for each of the five developmental domains measured by the Memphis. Results were significant in:

Perceptuo-Cognitive Skills	($p < .0215$)
Language Skills	($p < .0025$)
Gross Motor Skills	($p < .0175$)
Personal-Social Skills	($p < .048$; we consider this "borderline" significance)

Fine Motor development was not found to be significant.

B. During the second year of the project, 9 children (who had continued from the first year) were again administered the Memphis on a pre-test - post-test basis. The intervention period was 8 months. Significant gains were found in:

Perceptuo-Cognitive Skills	($p < .012$)
Gross Motor Skills	($p < .008$)
Fine Motor Skills	($p < .020$)
Language	($p < .054$; borderline)

Personal social was not significant.

C. The PEACH Scales (Program for Early Attention to Children with Handicaps) were administered to 23 children on a pre-test - post-test basis during the second year of the project, Results were significant in:

Conceptual Skills	($p < .024$)
Perceptual Skills	($p < .019$)
Language Skills	($p < .013$)
Gross Motor Skills	($p < .038$; borderline)

Fine Motor and Personal-Social were not significant.

D. The same children and data reported in section C above were grouped according to severity of handicap.

For the children classified as Moderate (N=7), the number who exceeded expected progress were:

Conceptual	4
Perceptual	6
Language	5
Fine Motor	5
Gross Motor	5
Personal Social	5

For the children classifled as Severe (N=12), the number who exceeded expected progress were:

Conceptual	7
Perceptual	9
Language	9
Fine Motor	7
Gross Motor	6
Personal-Social	6

For the children classified as Profound (N=5), the number of children who exceeded expected progress were:

Conceptual	1
Perceptual	2
Language	5
Fine Motor	0
Gross Motor	2
Personal-Social	2